

REMARKS

Claims 1-47 were originally pending in the application. Claims 1-4, 14-36, and 40-47 are rejected. Claims 1, 3, 5-13, 14-15, 19-27, 28, 29, 31-35, and 37-47 have been amended. New claims 48-86 have been added. Claims 1-86 are now pending in the application. Favorable reconsideration and allowance of this application is respectfully requested in light of the following remarks.

I. Claim Rejections - 35 USC 112

Claims 19-27 and 31-34 are rejected under 35 USC 112 as being indefinite.

Specifically, in claim 19, line 3, the Office Action notes that "linkage" should be changed to ---latch mechanism--. Claim 19 has been amended to change "linkage" to --plate--. The specification supports a plate (in the form of pivot plate 100) that is rotatably coupled to the damper blade 58 such that plate rotation engages the latch member 126 with the catch member 127, 129 when the blade is biased towards the closed position (See Fig. 1).

Claims 31 and 37 are said to be indefinite because the linkage does not rotate but it does translate. Claims 31 and 37 have been amended to recite a plate that is rotated, as supported by the specification.

Withdrawal of the rejection of claims 19-27 and 31-34 under 35 USC 112 is respectfully requested.

II. Claim Rejections - 35 USC 102

Claims 1-4, 14-18, 28-30, 35, 36, and 40-47 are rejected under 35 USC 102(b) as being anticipated by Hill. Of these rejected claims, claims 1, 15, 29, 35, and 41 are independent. Each of these claims, and their corresponding rejected dependent claims, are discussed below.

First, however, before addressing the prior art rejections, Applicant believes that a brief summary of Hill will assist the Examiner when reconsidering the present application.

SUMMARY OF HILL

Hill discloses a damper 10 having a damper blade 24 that pivots from an open position to a closed position upon failure of a fusible link 34 (Figs. 1 and 2). A lock and stop mechanism 40 includes a disc segment 42 coupled to blade 24 via a rod 26 (Col. 4, lines 14-20). When blade 24 closes, disc segment 42 rotates clockwise as illustrated, causing an

arcuate portion 42b of disc segment 42 to ride along an upper flange 44c of a slide plate 44. Once disc segment 42 rotates sufficiently such that the end of arcuate portion 42d clears flange 44c, slide plate 44 drops slightly such that flange 44c interferes with a stop surface 42d on disc segment 42 (Col. 4, lines 10-58).

Hill discloses an alternative embodiment that includes a plurality of damper blades (See Fig. 4), whereby the lock and stop mechanism 80 is constructed similar to that described above with reference to the single blade embodiment. In particular, a single disc segment 82 is coupled to one of the blades that interacts with a slide plate 84.

A. Claims 1-4 and 14

Independent claim 1 has been amended and broadened to replace the “spring member” with a biasing member urging the damper blade towards closed position. Claim 1, has further been amended to recite that the predetermined condition causes the damper blade to close. Claim 1 has further been amended to recite a latch mechanism including a plate connected to the damper blade and further connected to a locking member that rotates relative to the plate to lock the damper blade with respect to blade movement towards the open position once the damper blade has closed.

Hill therefore fails to teach or suggest the presently claimed locking member that rotates relative to the plate to lock the damper blade with respect to blade movement towards the open position once the damper blade has closed. In Hill, slide plate 44 slides relative to pivoting plate, as opposed to the rotating locking member recited in claim 1. The rotating locking member enables a hook 126 to engage a lip 129 of an opening 127 formed in housing wall 44. Hill’s configuration causes disc segment 42 to engage plate 44 directly.

Hill thus differs both structurally and functionally with respect to the present invention recited in independent claim 1. Accordingly, claim 1 and corresponding dependent claims 2-4 and 14 are allowable over the cited prior art.

B. Claims 15-18 and 28

Independent claim 15 has been amended to recite a damper assembly generally of the type described in claim 1, however the latch mechanism of claim 15 is recited as being movably connected to the blade that causes mating members to engage to resist movement of the damper blade towards the open position once the damper blade has closed, wherein one of the mating members is stationary.

Hill fails to teach or suggest that one of the disclosed mating members being stationary. Specifically, one mating member (flange 44c of slide plate 44) translates downwardly once disc segment 42 rotates sufficiently. Furthermore, stop surface 42d of disc segment 42 is movable along with disc segment 42 as disc 42 rotates.

The invention recited in claim 15 requires fewer movable parts and, accordingly, a simplified design with respect to that disclosed in Hill. Hill furthermore contains no disclosure that would suggest modifying the disclosed damper assembly as recited in claim 15. Accordingly, Applicant submits that independent claim 15 and corresponding dependent claims 16-18 and 28 is allowable over the cited prior art.

C. Claims 29-30

Independent claim 29 is a method claim that corresponds generally to apparatus claim 15 in the sense that claim 29 has been amended to recite the step of actuating a latch mechanism to cause mating members to engage, while maintaining one of the mating members stationary, and resist blade movement from the closed position towards the open position. As discussed above with respect to independent claim 15, Hill teaches the steps of moving both slide plate 44 and disc 42 in order to bring flange 44c and stop surface 42d into engagement. Furthermore, Hill fails to teach or suggest any modification to the disclosed damper as recited in claim 29. Accordingly, Applicant submits that independent claim 29 and dependent claim 30 is allowable over the cited prior art.

D. Claims 35, 36, and 40

Independent claim 35 is a method claim corresponding generally to apparatus claim 1 in the sense that the method has been amended to recite the step of engaging mating members by rotating a locking member relative to the plate to which the locking member is connected in order to resist blade movement from the closed position towards the open position. Claim 35 recites the plate as a member connected to the damper blade that is pivoted from a first position to a second position. The claimed plate is thus analogous to Hill's disc segment 42. Accordingly, the claimed locking member that is connected to the plate is analogous to Hill's slide plate 44. However, slide plate 44 does not pivot relative to disc segment 42. Rather, plate 44 slides within groove 46 formed in disc segment 42 (See Figs. 1 and 2). Furthermore, Hill fails to teach or suggest modifying the disclosed damper as to perform the method

recited in claim 35. Accordingly, Applicant submits that independent claim 35 and corresponding dependent claims 36 and 40 are allowable over the cited prior art.

E. Claims 41-47

Independent claim 41 has been amended to recite a latch assembly for a damper having a housing that defines a conduit, and a first blade that moves in tandem with a second blade to control fluid flow through the conduit. The latch assembly includes a first plate supported by the housing and coupled to the first blade. A second plate is supported by the housing, coupled with the second blade, and further coupled with the first plate via a linkage supported by the housing at a location outside the conduit. The linkage is connected between the first and second plates outside the housing. The second plate moves along with damper blade rotation to lock the damper blade with respect to blade movement towards the open position once the damper blade has closed.

Hill fails to teach the apparatus recited in claim 41. In particular, while Hill discloses an embodiment including a plurality of damper blades (See Fig. 4), the lock and stop mechanism 80 is constructed similar to that described above with reference to the single blade embodiment. In particular, a single disc segment 82 is coupled to one of the blades that interacts with a slide plate 84. Hill therefore fails to teach or suggest a second plate coupled to a second blade and further coupled to the first plate as recited in amended claim 41. The claimed configuration enables the two blades to be coupled for simultaneous rotation between the open and closed positions using a linkage outside the housing, thereby leaving the conduit free from obstructions to the fluid flow. Hill, on the contrary, requires blade brackets 69-1, 69-2, etc... disposed within the conduit to couple the blades with respect to oscillation (See Col. 6, lines 6-18).

The invention recited in claim 41 therefore differs both structurally and functionally from that recited in Hill. Applicant therefore submits that independent claim 41 and corresponding dependent claims 42-47 are allowable over the cited prior art.

III. Allowable Subject Matter

Applicant notes with appreciation that claims 5-13 and 37-39 were found to contain allowable subject matter. Applicant notes that these claims were amended for the purposes of form and clarity in light of their corresponding independent claims 1 and 35, and not in response to any rejection. These claims recite numerous limitations not taught or suggested

by Hill, and further depend from independent claims that have been shown to be allowable over the cited prior art. Entry of these amendments and formal allowance of the claims is respectfully requested.

Applicant further notes with appreciation that claims 19-27 and 31-34 were found to be allowable if amended to overcome the rejections under 35 USC 112. Claims 19, 31, and 37 were amended as discussed above. Claims 19-27 and 31-34 recite numerous limitations not taught or suggested by Hill, and further depend from independent claims that are allowable over the cited prior art. Accordingly, formal allowance of claims 19-27 and 31-14 is respectfully requested.

IV. Additional Claim Amendments for the Purposes of Form and Clarity

Applicant has further amended claims 3, 14, 20-28, 32-34, 40, and 42-47 for the purposes of form and clarity, and not in response to a rejection of these claims. Applicant requests that these amendments be entered into the record, and that these claims be allowed as 1) reciting subject matter not taught or suggested in Hill, and 2) depending from independent claims that are allowable over the cited prior art, as discussed above.

V. New Claims

Applicant has added new dependent claims included in claim sets 1-14, 15-28, 29-34, 35-40, and 41-47.

In particular, new dependent claims 48-50 have been added to claim set 1-14, and recite limitations not taught or suggested by Hill (e.g., the catch member being formed in a housing wall, the catch member being stationary, and the locking member being connected to the plate at a location spaced from the plate's pivot axis). Because claim 1 is allowable over the cited prior art, and because these dependent claims ultimately depend from claim 1 and furthermore recite limitations not taught or disclosed by Hill, Applicant submits that new claims 48-51 are allowable over the cited prior art.

New dependent claims 51-57 have been added to claim set 15-28, and recite limitations not taught or suggested by Hill (e.g., one of the latch member and catch member carried by the housing, the catch member formed in a wall of the housing, a locking member that is pivotally connected to the plate and causes the latch member to engage the catch member, and the locking member being connected to the plate at a location spaced from the

plate's pivot axis). Because claim 15 is allowable over the cited prior art, and because these dependent claims ultimately depend from claim 15 and furthermore recite limitations not taught or disclosed by Hill, Applicant submits that claims 52-58 are allowable over the cited prior art.

New claim 58 depends from independent claim 29, and recites that step (C) further comprises engaging a latch member with a catch member to resist blade movement. Applicant cites the allowability of claim 29 as providing sufficient basis for the allowance of corresponding dependent claim 58.

New dependent claims 60-63 have been added to claim set 35-40, and recite limitations not taught or suggested by Hill (e.g., engaging a latch carried by the locking member with a catch carried by the housing, biasing the latch in engagement with the catch via a spring coupled between the plate and the locking member, and biasing the blade to the closed position via a spring coupled between the housing and the plate). Because claim 35 is allowable over the cited prior art, and because these dependent claims ultimately depend from claim 35 and furthermore recite limitations not taught or disclosed by Hill, Applicant submits that claims 61-64 are allowable over the cited prior art.

New dependent claims 64-66 have been added to claim set 41-47, and recite limitations not taught or suggested by Hill (e.g., a spring member that biases the locking member towards a position that causes the latch to engage the catch, and wherein the spring member is connected between the locking member and the second plate). Because claim 41 is allowable over the cited prior art, and because these dependent claims ultimately depend from claim 41 and furthermore recite limitations not taught or disclosed by Hill, Applicant submits that claims 65-67 are allowable over the cited prior art.

New independent claim 67 has been added, with recites a first plate coupled with the first blade, and a second plate coupled with the second blade and also coupled with the first plate. Movement of the blades to the closed position causes both plates to pivot, and further causes the second plate to engage mating members that resist movement of the damper blade towards the open position once the damper blade has closed. One of the mating members is recited as remaining stationary while the mating members engage. Hill fails to teach or

suggest each element recited in claim 68. In particular, Hill fails to recite mating members, one of which remaining stationary, that resists movement of the blades once they have closed. Rather, as discussed above, both slide plate 44 and disc member 42 move in order to engage to prevent blade rotation (See Figs. 1 and 2). Furthermore, no teaching or suggestion exists within Hill to modify damper 10 as recited in claim 68. Accordingly, Applicant asserts that claim 68 is allowable over the cited prior art.

New independent claim 68 has been added, which recites a damper assembly including a latch mechanism movably connected to the blade that causes a latch member to engage a catch member, one of which formed in a housing wall. As discussed above, Hill fails to teach or suggest either of the disclosed slide plate 44 or disc 42 (analogous to the claimed latch member and catch member) being formed in the housing wall. Furthermore, Hill discloses no teaching or suggestion to modify the disclosed damper 10 as recited in claim 69. Accordingly, independent claim 68 and corresponding dependent claims 69-72 (which recite that the catch member is formed in the housing wall, that the latch mechanism further comprises a plate connected to the damper blade that causes the latch member to engage the catch member when the damper blade is closed, a locking member that carries the latch member and is pivotally connected to the plate, and a spring that biases the locking member into an engaged position) are allowable over the cited prior art.

New independent claim 73 recites a damper assembly a latch mechanism including a plate connected to the damper blade and further carrying a locking member that attaches to an engagement member. The engagement member is separate from the plate. The attachment of the locking member to the engagement member resists movement of the damper blade towards the open position once the damper blade has closed. Hill, discloses disc 42 that is analogous to the claimed plate, and a slide plate 44 that is analogous to the claimed locking member. However, in Hill, disc 42 engages slide plate 44 directly to resist blade movement. In claim 74, the plate causes locking member to engage a third component (engagement member) that is separate from the plate. It is the engagement between the locking member and the engagement member that resists blade rotation. Because Hill fails to teach or suggest this limitation in claim 73, Applicant submits that independent claim 73 along with corresponding dependent claims 74-77 (which recite a spring member biasing the locking member toward the engagement member, the spring being connected between the plate and

the locking member, a catch member formed in a housing wall, and the locking member carrying a latch member that engages a catch member) is allowable over the cited prior art.

Independent claim 78 recites a damper assembly including a latch mechanism movably connected to the blade that causes mating members to engage and resist movement of the damper blade from the closed position towards the open position. The damper assembly further includes a spring member that biases one of the mating members against the other mating member. Specifically, the instant specification discloses a spring 128 that biases hook 126 of locking member 124 against lip 129 of groove 127 once the damper blade has closed. Hill teaches no such configuration. Rather, Hill suggests that a spring could be installed to bias slide plate 44 down into an engaged position with respect to disc 42. The spring would not, however, bias slide plate 44 against disc 42. Furthermore, Hill would not be motivated to install a spring of the type claimed because it is not the pressure of slide plate 44 against disc 42 that determines the strength of the interlock, but rather the clearance between slide plate 44 and disc 42. In the present invention, however, the force of spring 128 determines, at least in part, the strength of the interaction between hook 126 and lip 129. Accordingly, because the invention recited in claim 78 differs both structurally and functionally with respect to Hill, Applicant asserts that claim 78 along with corresponding dependent claims 79-82 (reciting a plate that rotates along with the damper blade to bring the mating members into engagement, wherein the plate carries a locking member that includes one of the mating members, wherein the spring is connected between the plate and the locking member, and that the locking member carries a latch member that engages a catch member formed in a housing wall) is allowable over the cited prior art.

New independent claim 83 recites a latch assembly comprising a plate supported by the housing and movably coupled with the blade from a first position to a second position. The plate carries a first mating member. A second mating member is fixedly connected to the housing. Claim 83 recites that plate movement to the second position interlocks the first and second mating members to resist blade movement from the closed position towards the open position. Hill fails to teach or suggest the limitations recited in claim 83, as neither Hill's disc 42 nor slide plate 44 is fixedly connected to the housing – both members 42 and 44 move relative to the housing. Likewise, the inventions recited in claims 84-86 (i.e., 1) the first mating member comprises a flange formed in the plate, 2) the

second mating member flexes as it engages the flange, and 3) the second mating member comprises a plate having a base connected to the housing and a bent section extending from the base, the bent section defining a distal end that engages the flange) is neither taught nor suggested in Hill. Accordingly, Applicant asserts that claims 83-86 are allowable over the cited prior art.

VI. Conclusion

Applicant therefore respectfully asserts that all rejections and objections cited by the Examiner have been overcome. Accordingly, the application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

Applicant hereby authorizes the Commissioner to charge the \$1132 fee, including the \$702 fee for the addition of thirty-nine claims greater than twenty and the \$430 fee for the addition of five independent claims greater than three, along with any additional fees due for this or any other communication, to deposit account No. 17-0055. The Examiner is invited to contact the undersigned at the telephone number appearing below if such would advance the prosecution of this application.

Respectfully submitted,

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